

ABSTRACT OF THE DISCLOSURE

5 A method for domain patterning of nonlinear Ferroelectric is disclosed. The method seeks to reduce the formation of random and spontaneous micro-domains that typically result during thermal cycling of Ferroelectric materials and which leads to patterning defects and degraded performance. In accordance with the invention, a Ferroelectric wafer is provided with a conductive layer on the top and bottom surfaces of the wafer. A sufficient bias voltage is applied across the conductive layers to polarize the wafer into a single direction. At least one of the conductive layers is selectively patterned to form a conductive domain template. A sufficient reverse bias voltage is then applied to the conductive domain template and a remaining conductive layer to produce the domain patterned structure. According to a preferred embodiment of the invention, the Ferroelectric wafer is formed of LiNbO_3 or LiTaO_3 .